

October 23, 1956

To the Graduate Council:

I am submitting herewith a thesis written by Tej Narain entitled "The Role of Agricultural Marketing in Economic Development." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

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THE ROLE OF AGRICULTURAL MARKETING IN ECONOMIC DEVELOPMENT

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A THESIS

Submitted to
The Graduate Council
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

by
Tej Narain
December 1956

ACKNOWLEDGEMENT

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33a

I was looking forward to making a study of this kind for some time. An opportunity arose because of Dr. E. J. Long, whom I met in my home-town Hyderabad, India in August 1955. I thus drifted towards this task and have been able to equip myself with some knowledge worthy of being of service to my country in this field. Dr. Long's brief conversation in India infused in me the enthusiasm and his association at the University has given me the inspiration. I owe my deepest gratitude to him for making this study possible.

My very sincere thanks are due Dr. D. M. Thorpe, who has given me all encouragement and has always shown kindness.

I am indebted to Dr. Eldon D. Smith, owing to whose most inspiring guidance, unceasing efforts, and untiring patience, I have been able to make this presentation.

I have always been given most effective and valuable advice and suggestions by Mr. A. W. Woodard, to whom my very sincere thanks are due.

I am also thankful to Dr. M. B. Badenhop for his guidance and to Mr. J. J. Bird for orienting me with the details of the strawberry industry.

Acknowledgement is due Mr. B. D. Raskopf for his valuable references to the aspects of Agricultural Economics and Dr. Lewis C. Copeland of the Bureau of Research for valuable guidance in editing the manuscript.

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INTRODUCTION

This thesis will explore the role of agricultural marketing in economic development. Historically, it will be shown how agricultural marketing has played an important role in improving economic well-being. To demonstrate these phenomena, the part played by agricultural marketing during the primitive days, the influence it had on the economy of the Middle Ages, its contribution to economic development during the colonial period, and the main characteristics of this activity that led to the development of the United States will be brought to the reader's attention.

However, historically, with the depression of the 1930's, it will be shown that events tended to obscure the influence of agricultural marketing on economic development. The obvious causes, as we shall see, were stagnation and focus on investment and recovery. At that period of time, the state of theory in marketing reflected a dissociation from development and was pointed more to problems of efficiency, allocation of resources, and distribution of income.

The question that has now become significant is whether or not improvements in marketing are really strategic to economic development in the low-income areas of the United States and in the underdeveloped countries of the world. Thus we seek to find if various processes of agricultural marketing are proper and necessary to assist development. If we conclude

that improvements in agricultural marketing are necessary, the issue then is, can the current theory used in marketing be considered adequate to the analysis of development problems in the marketing field?

The dissociation of theory in marketing from economic development is in part the outcome of the fact that marketing has no special theory and uses the general body of economic theory in all its functions. The main historical trends of classical economic theory in the past focused on static rather than growth problems. This is evident from the dominance of the Ricardian concepts, as they existed and prevailed in the Europe of the nineteenth century. Although marketing has been important in the developmental process throughout history, in the current development of economic thought there has been little attention to developmental processes in general and marketing development in particular. Even when John M. Keynes expounded the Theory of Employment, Interest and Money, he ignored the development aspect of economic theory, laying emphasis on stabilization rather than development, and on maintenance of some general level of investment as a primary tool rather than the development of marketing processes and institutions specifically.

All these factors contributed to the disregard for the vital notion of economic development - a disregard which has been abandoned only recently. The need today is, therefore, to realize the importance of production and development aspects

in the various economies, to explore the role of marketing in assisting these processes, and to realize that the dissociation is a function of theory and not of practice. These views are particularly applicable, of course, to low-income and under-developed areas.

This thesis will develop one empirical case to show the relationship of agricultural marketing and economic development. Specifically, the area chosen is the Cumberland Plateau in Tennessee, where the production of strawberries has been undertaken by the low-income farmers and has contributed to better their economic conditions in general, thus leading to an increase in the "social product." Finally, the adequacy and implications of current theory in marketing will be considered in relation to development and with regard to programs and policies.



CHAPTER I

HISTORICAL BACKGROUND OF MARKETING AND MARKETING THEORY IN RELATION TO ECONOMIC DEVELOPMENT

Historical Background

Primitive Society

When we consider the practice of the exchange of gifts on ceremonial occasions, and at rituals and marriages among primitive peoples, we notice in operation the basic phenomenon of circulation of goods. In the early stages, the distribution of necessities was an allocation of what was produced in the household, which served as the primary economic unit. The marketing aspect became significant only when goods were exchanged among the different countries. The non-economic motive which predominated in the process of gift-exchanging among the members of the same group developed into the concept of marketing of goods which involved an economic motive. While in the former category social prestige was the guiding factor, in the latter reciprocal benefit became the basic consideration. Discriminating between the two distinct categories of commodities that were commonly exchanged with different motives, Herskovits quotes Tueting, ". . . commodities of great value such as pigs, shell ornaments, and canoes are usually exchanged ceremonially. Food and pots are always bartered."¹

¹Melville J. Herskovits, The Economic Life of Primitive People (New York: Alfred A. Knopf, 1940), p. 139.

Both the practices aimed at transfer of economic well-being (real income) to the extent of the value of the goods. The act of giving a gift among the non-literates necessarily meant a return; prestige was attached to the ability to return a gift of greater value than the one received. Studies in the social customs of hill tribes of India have shown that various tribes are under obligation to each other to perform certain functions as part of their duty for certain ceremonies and rituals. In these customs, although the influencing factors are social position, religion, etc., we cannot escape seeing that they involve the economic phenomenon of exchange of goods and services. Several types of exchanges have been observed in New Guinea, Africa, Australia, and North and South America. This circulation of goods and services has far-reaching economic repercussions, by way of redistribution of commodities and specialization in the production of particular goods.

The mode of return of a gift (especially in the shape of money) as was prevalent in Taos, where a pottery bowl was returned with fifty cents and two rings were reciprocated with a gift of a bead-necklace, shows the development of a concept of value. The "silent trade" further strengthened this concept and brought in bargaining, which was evident in the refusal to remove the goods offered in exchange for certain other goods offered for sale. This system of barter thus became a mechanism of exchange, involving all of the various

utilities such as form, time, space, etc.

Thus, while the process of gift-giving involves social prestige and satisfaction of personal glories, that of barter and exchange of goods derives value from their utility in meeting the demands of everyday existence. So far we have observed that in the primitive society, the practices of gift exchange, barter and trade have been closely associated with the economic life of the people. These practices have led to improved ways of living, better income, and thus advancement of the society, owing to its being interlinked with the economic conditions, contributing to general welfare of those who took part in this activity.

The Dark Ages

During the medieval period the economic life in western Europe had retrogressed because of the intervention of the Muslims, who stopped trade of Europe with the Near and Far East. The birth of the Byzantine Empire was responsible for Europe's complete discontinuance of trade relations with the more prosperous countries of the east.

Deprived of steady revenues, the medieval kings and their relatives had turned nomads again, moving from one estate to another, as they ate out local supplies. . . . Economic life had become decentralized and had clustered around monastic, episcopal or baronial estates, which were largely self-sufficient.²

²J. B. Condliffe, The Commerce of Nations (New York: W. W. Norton and Company), p. 22.

Discovery Period

These were the reasons that were responsible for motivation and subsequent behavior of man. It was through the experience of deriving increased utility from exchange or seizure of commodities that there arose a desire to explore in search of raw materials. The discovery of "frontiers" enabled the countries to find suitable markets for their finished products in the new land, as well as raw materials. The rounding of the Cape of Good Hope by Borthelemew Diaz in 1486-88 and the landing of Vasco de Gama at the Indian port of Calicut in 1497-99 brought in wealth to Europe through the spice trade, and contributed to the commercial progress of Europe. Without this trade, much of European progress would probably have been impossible.

Europe of the Dark Ages very soon cast off the influence of the medieval times and emerged with a revived economic life along with a revival in learning and orderly processes of government. Once again opportunity for economic enterprise was afforded to the people by the reopening of trade with the Mediterranean countries.

An extensive trade had developed overland by the northern route to China, by the shorter route to India, through the near-east and down the river valleys to the great market of Byzantine and the eastern Mediterranean.³

³Ibid., p. 24.

In this way, trading was not a "fortuitous or whimsical phenomenon but rather an observable datum governed by laws of behavior that are subject to discovery."⁴

It is difficult to fix the actual date on which trading started, yet its antiquity is undisputed. The change in an individual's behavior from the non-economic practice to a crude way of barter and, thereafter, to simple trading and the marked emergence of the concept of value resulted in the evolution of an institution known as the "fair". The fairs gave an opportunity to traders from the various parts of the country to assemble in one place and at a fixed time, where they might bargain directly with each other.

Colonial Period

In the North America of the colonial period, the marketing process began to take on color. The "Yankee peddler" sold small items required by every household and "it was not unusual for adventuresome young men to forsake the church or professions for this colorful career."⁵ About the peddler, it was said, "Quite a flutter he caused when he appeared on the village green and opened his pack."⁶

⁴George W. Robins, "Notions About the Origin of Trading," Journal of Marketing, Vol. XI, 3:228, January 1947.

⁵Roland S. Vaile, E. T. Grether and Reavis Cox, Marketing in the American Economy (New York: The Roland Press Co., 1952), p. 257.

⁶Loc. cit.

With the institution of the "fair", came the concept of "forestalling", "regrossing" and "regrating". The ancient economy prohibited the three and allowed an unrestricted enterprise; but by 1776 the concept had undergone a radical change. The three functions were no more considered detrimental to the operation of a free economy. Removal of this restriction enabled the merchants to accumulate stocks, and thus the function of the wholesaler was created. The whole-sale-retail system developed and flourished during the nineteenth century in the American economy; and the linking of local markets, towns, cities, and regions was made possible in order to create a "smoothly operating mechanism of inter-market exchange."⁷

With the industrial revolution, the position of the wholesaler was weakened because of the ability of the factories to establish direct contact with the retailers. This, however, did not apply to agricultural marketing because of the inability of the farmers to assume the varied types of responsibilities of the wholesalers.

In the United States, with the industrial revolution, the factories could swing into full operation because there were markets available for their manufactured goods. The development of industries brought in mechanical appliances, many of which were used in the agricultural areas. By their use

⁷Loc. cit.

large scale agricultural operations were possible, and the increase of produce found a ready market in Europe and England. The rapid development of agriculture and industry would not have been achieved had it not been for the European markets which were ready to absorb agricultural commodities from the extensive commercial farms of this country.

Thus, in the formative period, economic development of the United States rested on the functions which marketing of agricultural commodities performed.

The purpose of narrating the developmental process of the marketing thought in the past is to draw certain obvious conclusions with regard to implications of this system. The historical growth has shown us that with the birth of "fairs", common places of assembly for buyers and sellers were created which formed an essential part of establishment of markets. Distance, however, remained a barrier. But with the advent of the steam-engine even this difficulty was overcome, as railroad tracks were laid connecting the important market places. Sea-ports were also developed, and later on the construction of highways finally maximized space utility through the truck hauls. Thus all the requisites of a regular market were provided, enabling creation of possession utility to complete the process of marketing.

The barter system necessarily meant specialization in production and was based on the principle of comparative advantage. Division of the country into corn belts, cotton and

wheat areas is an outstanding example in this regard. Based on the same notion, the farmer today is given the fullest opportunity to use his skill and resources in growing crops which give him an advantage over others.

With this historical background, we may now survey the marketing system as it stands today. It also lies within the scope of this thesis to investigate if this has had any bearing on economic development. If so, what have the means been for such a contribution, how have the various prevailing concepts of our economy led us to make general economic development a function of market development? We would also observe how as time elapsed marketing came to be viewed in terms of efficiency, allocation of resources, and income distribution only, setting aside the role of economic development. Usually, economic development is defined as the fullest utilization of land resources coupled with an efficient combination of the other factors of production enabling optimum resource allocation and bringing about an altered pattern of distribution of income. Today it means to us something more dynamic, coming about as a result of improved knowledge through the medium of social institutions that are responsible for human relationships.

The activities which lead to making available for consumption already produced farm products required by people in general, giving rise to any or all of the various utilities, i.e., of form, space, time, and possession, would define in

broad terms the scope of marketing. The scope of activities of the present marketing system has enlarged so that in addition to the conventional contribution of making the product easily and economically available to the consumer, marketing has also come to involve persuasion of people and creation of demand for various commodities. From the direct barter system, it has now entered into a more physically complicated and overlapping structure. In a "barter" or "peddler" age, the producer and the consumer directly fulfilled the requirements of a market, whereas today the number of people in this field of economic activity has risen considerably, with the result that now we are inclined to think of such terms as "efficiency" in the marketing system. The growth of markets into a superstructure of this magnitude has been accompanied by still greater problems, which need our attention to bring in prosperity and well-being.

Basically, a marketing system is pivoted on its main functions of assembly, processing, and dispersion, with various secondary services that are rendered in the performance of the major task. The secondary services such as grading, packaging, transporting, storing and price determination have an equally important role to play in the fulfillment of this process.

The Role of Middlemen

In the western countries, coupled with the rapid rise

in population in the latter part of the nineteenth century was the development of new scientific processes of production to replace the handicrafts. With development of new scientific knowledge movement of goods increased rapidly, and production and consumption centers were separated widely, bringing to the forefront division of labor and the need for the price-making functions of a market. In between the producer and the consumer, a series of middlemen cropped up to undertake the task of buying goods whenever and wherever they were available and transporting them to other areas at a time when the goods were in demand.

They were able to do so because their expert dealings in place and time utility widened the range and lowered the costs of making connections between the producer and the consumer.⁸

The above in brief is the task with which a middleman is faced. His existence in the setup is necessary because of the changed level of technical achievement, i.e., it is now the function of the marketing system, and not of the farm-operator, to convert the raw agricultural products into suitable form before delivering them to the consumer. Not one but all the services come under the sway of middlemen who, as a matter of choice, select one or more fields of operation, such as transporting the product from farm to place of assembly, packaging in shipping containers or in grocery bags, etc. While performing their duties in the field of grading, the middlemen

⁸Condcliffe, op. cit., p. 301.

have the important task of sorting and standardizing the commodity for the purpose of effective quality control. Again, storing is important because "agriculture is characterized by relatively large and irregular seasonal and year-to-year fluctuations in production."⁹ Because of the time-lag between production and the relatively stable consumption of agricultural products, they have to be held by some agency over a period of time, and the middlemen undertake this because the farmers generally are unable to wait for a long period of time with all the risk of operation involved therein. The middlemen, in performing this task, help the entire mechanism work by adjusting supplies to the requirements of the market and by spreading their use over the year.

Transport

Mention has been made above of the transportation services performed by the middlemen. These services need further elaboration for the reason that this aspect of marketing has played a vital role in the past in contributing to economic development and many new developments in this area appear to be needed and forthcoming. One could not visualize a market with no means of transport, no railroads, no highways and no truck-hauls. With the emergence of railroads, effective control of location of markets was possible to such an extent

⁹F. L. Thomsen, Agricultural Marketing (New York: McGraw-Hill Book Company, Inc., 1951), p. 80.

that even today most of the important markets of the United States have access to this means of transport. Later came an era of good roads. What could not be achieved by the railroads has been done by the highways. Trucks are able to move over the length and breadth of the country, enabling delivery of goods at stores not served by rail or water transportation.

Transportation at present involves ten million workers, a hundred thousand processing plants, two hundred thousand miles of railroads, three million miles of highways, ninety thousand wholesale establishments, one million retail stores and restaurants and several commodity exchange banks and financial institutions.¹⁰ "Practically every part of our economy is dependent upon technological methods of processing, storing and handling, which have been developed over the past century."¹¹ These are the functions performed so far but there is yet much more to come, and every time humanity makes progress, the same impressions would be left over the sands of time. Since World War II airplanes have also been used to transport goods commercially. Experiments have shown that food and perishables can now be sent over long distances by air. To briefly narrate

¹⁰United States Department of Agriculture, Yearbook of Agriculture: Marketing, 1954 (Government Printing Office, 1955).

¹¹Thomsen, op. cit., p. 125.

the effects, "every improvement in transport has extended the area and increased the number of commodities that are potentially marketable."¹²

Conceptually, prices are the index of consumers' desires. Prices "constitute the master control system for both production and marketing. Through prices, consumers indicate what products, quantities and qualities they want and stand ready to pay for."¹³ In the marketing system middlemen play an important role in catering to the needs of the consumer. Thus, when we consider the distribution of commodities, their services are indispensable. My laying of emphasis on the jobs undertaken by the middlemen may give the reader a notion that it is being tried to make out a case for the existence of the middlemen. This has been done to depict the important function which the middlemen perform in marketing. He has to weigh the needs of consumers on the one side and ability of the farmers (producers) on the other, to supply the commodity. How important a role this man performs can best be conceived of if he simply overestimates one and underestimates the other while judging the demand and supply. The whole structure would feel a shake, to recover from which would involve time and resources.

¹²Condliffe, op. cit., p. 304.

¹³Thomsen, op. cit., p. 81.

Theory in Marketing

We do not come across any formulation of a specific theory of marketing as such in the literature. But in actual practice, people have been adhering to theory when they identify markets. Such theory has guided public officials in formulating policies which have determined the influence of agricultural marketing processes on economic development. If we seek to find in marketing a theory on which we could base broad generalizations, we would be lost, as there can be no single theory of marketing, mainly because the field, broad and diverse, involves grading, transportation, transactions, legal sanctions, etc. In marketing we find the various sciences working. Of course in the broadest sense, the theoretical basis on which marketing stands is economic price theory. Group psychology, sociology and ecological studies are also closely related to the phenomenon. A pure theory of marketing has not been formulated; it is only the application of various theories that go to make an "applied" theory of marketing. The literature in this field today supplies us with a concept of the behavior of the firm, i.e., an individual enterprise, and shows how its policy decisions may be conceptualized, but "the most difficult problem of both the economic analysis of the firm and of a separate business policy approach is to relate the behavior of the individual enterprise to the broader pattern of the behavior of the industry and the econo-

my".¹⁴

Decisions in marketing are ordinarily based upon the motive of maximization of profits. This perhaps leads to manipulation of cost, demand, or of factor-price. These criteria are considered in the behavior of the firm and one view is that general economic theory is sufficient to take care of problems in marketing.¹⁵ But we find that study of marketing has already called attention to certain problems, for instance, classification of commodities, and price discrimination structures. It has also required attention to the concept of values. Thus a fuller consideration of the problems might bring in more reasonable sets of hypotheses to be used in dealing with problems in marketing economics. Consistent theoretical perspectives for the major classes of significant aspects of marketing are also lacking. Thus we are led to the conclusion that a comprehensive theory of marketing has yet to be thoroughly conceptualized and enunciated.

The neo-classical economists developed a structure of theory which was based on the concept of profit maximization. In doing so they had to rely more on mathematical reasoning, devoting full attention to the price theory. Thus we see that

¹⁴Wroe Alderson and Reavis Cox, Editors, Theory in Marketing: Selected Essays (Chicago: Richard D. Irwin, Inc., 1950), Vol. II, p. 117.

¹⁵George L. Mehren, "The Theory of the Firm and Marketing," Theory in Marketing. Editors, Reavis Cox and Wroe Alderson, Chicago: Richard D. Irwin, Inc., 1950.

more emphasis was laid on the distribution aspect of economics rather than on the developmental.

The Labor Cost Theory enunciated by David Ricardo was followed by the concept of satiation of wants, which later gave rise to the Theory of Marginal Utility. Alfred Marshall refined this theory and reconciled it with the main body of classical doctrine. With the emergence of a symmetrical and elaborate system of theoretical analysis, primarily, the forces determining the value of commodities in a market were explored; and with the analysis of demand and supply of an individual commodity, a general theory of equilibrium was enunciated to demonstrate that the prices of commodities were interdependent.

These economists concentrated upon the theoretical methods of analysis rather than upon observation and classification of economic phenomena. For some reason or other they did not test the assumptions on which they were working, nor did they alter the assumptions within which the theory was working; as an example, the "state of the arts" or technology was taken as "given" and "static". Perhaps they did not estimate the increase in potentialities that would result owing to application of technology to the various factors of production. Even in the early part of the twentieth century, both economic theory and business practice continued to take for granted the political and economic

principles upon which the classical system of economic thought was built. In the early twentieth century, when Richard Schuller came out with the theory of protection to national industries, he tried to remain within the Ricardian concept of static resources, such as the theory of rent and tried to construct a theoretical basis for protective policies.

After World War I, during the period of the great depression, guided by the conditions which England was facing, J. M. Keynes became more interested in recovering the foreign investments of Britain and was also concerned with the growing unemployment which was causing great harm to the entire economy of the country. Under these circumstances, Keynes came out with his Theory of Employment, Interest and Money. He laid emphasis on further investments for the purpose of recovery of the old ones and attached no importance to the development aspect of the economic theory, very similar to the Ricardian concept of the nineteenth century.

All these facts lead us to conclude that although marketing has been important in the developmental process throughout history, in the concurrent development of economic thought, there has been little attention given to the developmental process in general and market development in particular. Although the theory of economic thought was not directed toward economic development, great concern was expressed in this direction through discussion of practical legislation and policies like those in areas of government interest and of private enter-

prise, such as international trade and many more. Thus the dissociation of the development aspect was not one of practice although it was obviously dissociated in economic theory.

History shows that European markets were open to the agricultural commodities of the United States. Economic development of the United States would have been greatly hampered taking into consideration the country's agricultural and industrial potentialities, if there had not been developed a system of industrial markets for agricultural products, industrial power and currency. It was the agricultural wealth of the United States that attracted capital from Britain and the continent of Europe that led to the development of industry and enabled building up of the railroads that span the continent today. The rapidly increasing production of agricultural commodities marketable in distant foreign and domestic areas was to a large extent responsible for bringing about development of both the continents. Had it not been for the export of finished products and imports of agricultural commodities by Europe, the continent's urbanization would have been hampered. On a similar footing, if Western Europe had not provided export outlets and capital goods, the westward expansion in the United States would not have been so rapid.

All these historical facts go to prove that development of an adequate superstructure of agricultural markets is a vital factor in economic development of the backward areas, whether they lie within the United States, in the outside

continents or between continents. Development of markets is thus viewed as an integral part of economic development.

The subsequent discussion is an attempt to bridge in point the theoretical gap between development theory and marketing theory. We use as an empirical medium a study of the history of the strawberry industry on the Cumberland Plateau of Tennessee.

CHAPTER II

HISTORY OF THE STRAWBERRY INDUSTRY IN TENNESSEE AND CUMBERLAND PLATEAU: ITS SIGNIFICANCE AND DEVELOPMENT OF THE HYPOTHESIS

It is the purpose here to trace the history of production of strawberries, to refer to the methods and practices followed by the producers of this commodity, and to describe the activities of the Agricultural Extension Service of the University of Tennessee in identifying well-adapted areas for the cultivation of this crop and disseminating information about better methods of production. It is also intended to show how these activities and others brought about a relationship of mutual coordination between the growers and the processors, i.e., economic development of the area was possible through coordinated development in production and marketing. These developed processes were brought about by changes in the institutional structure surrounding the industry, which resulted because of recognition on the part of the processors, that their own economic interests were dependent upon the improvement of production possibilities facing the growers.

Finally it is shown that through this activity, the developments directly benefited low-income farmers in the area, thus establishing that agricultural marketing is directly related to the economic development of the area.

The hypothesis therefore is that production and marketing of agricultural commodities are interdependent.

With the identification of recognized new potentialities of production, coincidental with and because of simultaneous development of institutions bearing relationship with production and marketing, new possibilities of economic growth were opened up.

In order to trace the history of production of strawberries in Tennessee, we have to divide the production period into two parts, viz., the period before 1945 and the period after 1945.

History of the Strawberry Industry

Period Before 1945

In Tennessee, commercial strawberry production has been carried on by farmers for the past forty years. Even before that, undoubtedly, there was some strawberry production for local fresh consumption. Originally, the production areas were confined to East Tennessee (Spring City, Dayton, Maryville and Decatur)¹ where availability of cheap labor, the existence of a loose kind of soil, the suitability of the climatic conditions, the absence of insect diseases, and the nonseriousness of soil erosion were the advantages enjoyed by the producers of this crop.

¹Conversation with J. J. Bird, Associate Horticulturist, Agricultural Extension Service, University of Tennessee, Knoxville, Tennessee, July 16, 1956.

The result was that a substantial acreage was under strawberries. A total of 26,000 acres was grown in 1924 with an average yield of 57 crates per acre, producing 1,493,000 crates. During this period of high acreage under the crop, farmers were adhering more or less to traditional techniques of production owing to the fact that full time Extension Service personnel were not available in commercial horticulture until 1946. The growers of this crop depended entirely on the fresh markets for direct sales. Also, farmers had taken to consignment selling and almost 90 per cent of the crop was being shipped outside the state.² Thus in the marketing of the commodity, the activity of the producer was largely confined to the fresh markets.

In the later years of the period, the labor problem became acute because of migration to the industrialized north. The soil was no longer free from insect pests, the crown-borer became uncontrollable in the East-Tennessee area and land erosion became more serious when yields began to decline. Associated with the declining yield was deterioration in quality of the crop, resulting in a low price for the commodity.

Many in East Tennessee, therefore, decided to give up strawberry production. By 1945, the producing area had declined to about 6,000 acres. Specifically, the inability of the processors to pay even the direct costs of production and

²Conversation with J. J. Bird, July 16, 1956.

the loss of demand in the distant market to which the crop was shipped were responsible for the movement of the crop to western counties of the state, where reportedly labor was still available at cheaper rates.

The year 1945 was a period of transition, when parts of Middle and West Tennessee were growing strawberries with neither area growing them extensively. Until about 1948 the fruit remained essentially a fresh-market commodity, no significant processor-market being available until then. The prices obtained in the fresh market were above the reach of the processor.³ During the good crop period of 1939, the processors invested in establishing the freezer plants in the Middle Tennessee area and had become buyers of a portion of the produce since then.⁴ But with the shifting of a major portion of the acreage to West Tennessee they virtually underworked the plants and were about to cease their operations in 1945.

Period Since 1945

The steep fall in the acreage and the acuteness of the problem of the farmers in Middle Tennessee drew the attention of the University of Tennessee Extension Service. A survey of the problem and an analysis of the strawberry situation was made in 1946. According to J. J. Bird, a survey of the major

³Conversation with J. J. Bird, July 16, 1956.

⁴Ibid.

areas in Tennessee was made to find out if the crop could be successfully grown under natural conditions there. It is alleged that the survey revealed that the loose type of soil and the temperate climate which are essential for the growth of this crop were absent in most of the counties. A similar survey in the East Tennessee area found great prospects for this crop. These conditions were therefore the basis of the recommendations of the Extension Service, that the counties in West Tennessee should reduce the crop acreage and that the farmers in East and Middle Tennessee should be persuaded to take up its cultivation once again. But the farmers in Middle and East Tennessee had also to be given an assurance that their produce would be marketable before they would invest in new beds. Thus it became necessary to induce the processors to work their freezer plants and to assure farmers in some way that their product could be marketed at a price sufficient to attract production in volume.

Removal of Imperfect Knowledge

The Role of Agricultural Extension Service

As a result of the survey, the Extension Service launched upon a campaign of promoting production of strawberries in the Middle and East Tennessee areas, with particular emphasis upon the "plateau", where natural conditions suited most. This campaign resulted in reallocation of re-

sources to the advantage of the low-income farmers in the Cumberland Plateau. This responsibility was also shared by the County Agents who were trained for this purpose. Special bulletins issued by the Extension Service from time to time enabled the County Agents to keep informed of the latest methods of production and the improvements made in the techniques. The Agents thus became important media through whom the Extension Service maintained contacts with the growers of strawberries.

With the enrollment of the processors as honorary members of the Tennessee Frozen Food Association (which was formed about 1945)⁵ and the Kentucky Cannery Association (which was in existence since 1919)⁶, contacts of the two important agencies--i.e., the Extension Service and the processors--in the history of the development of the Cumberland Plateau strawberry industry started showing up. Later, the two came still closer with the participation of the Extension Service in the programs and annual conventions of the processors. The processor group also started supporting actively the programs sponsored by the Extension Service designed to familiarize the strawberry growers with efficient techniques of production, because their success was intimately tied to the success of the farmers in this area, that is, in reducing costs and raising the yield and

⁵Conversation with J. J. Bird.

⁶Ibid.

quality. In addition to keeping the farmers well informed of the latest methods of production through the "Hort Shorts" bulletin issued by the Extension Service, and through the effective media of the Agents, several field trips were organized in the plateau area. Farmers were given practical instructions in the methods of weed control, spraying, use of fertilizers, etc., at the same time showing them the exact type of soil which was best adapted to this crop. In this way the growers got oriented with the "soilfit" and the existing techniques of production, which guaranteed them much higher yields.

Contribution of the Processors

Simultaneously with the expansion in production of this crop in the plateau area, activity of the processors increased, and in turn provided the required incentive to the growers. As the production campaign went into full swing, at the recommendation of the Extension Service, a 300 Crate Club was formed in order to encourage the farmers to achieve a high yield. Possibly as a result of this club, in 1955 most of the farmers in the area got an average yield of about 150 crates per acre and the membership of the club went up to 36.⁷

With the formation of the Tennessee Frozen Foods Association, the processors became more and more interested in higher yields and in the expansion of the acreage in the Cum-

⁷Conversation with J. J. Bird, April 1956.

berland Plateau. Increase in yields was necessary before the income per acre could be raised enough to induce expansion of the industry. This motive led the association to request Mr. J. J. Bird to undertake an extensive tour of the country's best strawberry growing areas at the expense of the association. Mr. Bird's visit to Oregon, California and Mexico gave him extensive first-hand knowledge of the latest improvements in techniques, which he could demonstrate to the farmers in Tennessee. To recount the part played by the processors in providing the type of incentive that was most essential to the farmers, we have to look through the entire developmental process which took several years to be effective and to achieve a satisfactory level. Although initiative is alleged to have been taken by the Extension Service, yet the entire plan could not have worked had not the processors been enabled, through the efforts of the growers, to work their freezers and to play an important role in the marketing of the produce.

The working of the freezer plants meant an appreciable amount of risk for the processors. They were not confident of running the plants to full capacity and they had their own apprehensions about the quality of the crop. Fortunately, with the joint efforts of all the participants in the program, the future of the industry became more promising and the processors continued to evince greater interest by holding competitions and awarding prizes to the champion growers. The processors further helped the Extension Service by deputing their own

field-men to assist the County Agents in this campaign. Most important of all the encouragements was the guaranteed payment of approximately uniform prices even for low quality berries. This was evidenced during the drought period of 1952-54, which enabled the farmers to stay in the industry. The supply curve was lower than it could have been. The appeal was not of maximizing returns for a given production function but was one of changing the schedule. In order to assure a market for strawberries, the processors in turn had to have some assurance that high quality berries would be produced in volume sufficient to make operations of the plants possible. The Extension Service had evidence that if strawberries were produced on better soil and under advanced cultivation practices it would be profitable to growers. They apparently had some reason to believe that the growers would respond if given some assurance of markets at adequate prices.

These conjoint efforts came about as a result of the activities of the Extension Service in identifying production possibilities that were not being exploited, and in interpreting their meaning to interested groups.

The Influence of Other Factors

Appraisal of the present situation in the Cumberland Plateau would remain incomplete if no reference was made to the other factors that enabled a development of this nature. While the two agencies functioned to bring about a change in

the economy of the Cumberland Plateau, they were greatly helped by the availability of electricity, the railroad and the various kinds of technological advances that were essential for the growth of the freezing and processing industry.

The supply of electricity was a precondition for the establishment of the freezer plants, which in turn enabled the processors to profitably buy and process the crop without the risk of perishability. In one way the consumer was also responsible for the creation of demand, the effectiveness of which depended on refrigeration technology. In the activation of the plants, it was not a matter of introducing new technology into the industry. This technology, though a precondition, had been in existence for some time. The strategic factor was organization of the existing technology, i.e., it was a matter of putting into practice the known production methods and activating the freezing plants.

Theoretically, we are aware that the construction of highways and railroads increased in general the possibility of access of the producers to the market areas. The Tennessee Central Railway was already in existence before the industry started to expand. Truck hauling also became available as an additional facility.

The economic development of the Cumberland Plateau strawberry industry was thus an outcome of several factors. The Extension Service can be given the credit of analyzing production possibilities and of creating awareness of the need for

improvement in technique. Coordination between the producer and the marketing agency improved as a result. The processors have to be recognized as being responsible for creating demand for the commodity, but this would not have been possible if some means had not been found for improving techniques and effectively convincing farmers that a market would be available. If only a few producers had gone into the business it would not have been possible for the freezers to operate efficiently.

Technological progress at most made higher yields, facilities of storage and transport for bringing about the utility of space economic possibilities. All these factors contributed to the working of the marketing mechanism and favorably helped the farmers in this area to improve their economic conditions. But given these preconditions, the organized educational activities, and changes in market institutions became strategic. In the Cumberland Plateau, especially, the low-income farmer has benefited because in this industry it is possible for him to employ resources at marginal rates above their opportunity cost. In a sample of 24 farms, in this area, the average per acre income of this crop was \$722 (Table I) as compared with the state average of \$140 per acre during the period before 1945 and of \$396 during the period after 1945 (Table II).

Thus it would be proper to conclude that the contribution made by the small acreage in individual farms is significant and important. All this development would not have been

TABLE I

SIZE OF FARM, STRAWBERRY ACREAGE AND GROSS INCOME FROM
STRAWBERRIES IN CUMBERLAND PLATEAU, 1954^a

	Under 1 Acre			1.00-1.99 Acres			2.00 Acres and Over		
	Acres in Farm	Acres in Strawberries	Income (Dollars)	Acres in Farm	Acres in Strawberries	Income (Dollars)	Acres in Farm	Acres in Strawberries	Income (Dollars)
	30	0.50	428	40	1.25	1,134	22	3.50	2,521
	6.50	0.50	518	48	1.00	648	20	4.00	1,944
	25	0.50	596	35	1.50	2,560	38	2.50	1,879
	31	0.33	130	40	1.00	441	29	2.00	1,685
	30	0.50	454	35	1.00	778	16	2.75	2,065
	9	0.75	156	47	1.50	991			
	12	0.50	324	40	1.00	363			
	26	0.50	201	4	1.00	486			
	18	0.33	324	34	1.00	713			
				25	1.00	1,037			
Total	187.50	5.00	3,131	348	11.25	9,151	125	14.75	10,096
Average	20.83	.56	348	34.8	1.13	915	25	2.95	2,019
Income, per Acre			621			810			684

Income per Acre (Average of All the Categories) = \$722

^aSource: Leslie A. Glascock, "Market Structure of Buying Firms and Practices of Strawberry Growers in the New Cumberland Mountain Area of Tennessee," (Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1954), p. 57.

TABLE II

ACREAGE, YIELD, PRODUCTION AND VALUE OF STRAWBERRIES
BY YEAR, 1935-1954^a, 1955 and 1956^b,
TENNESSEE

Year	Acres Harvested (Acres)	Yield Per Acre (Crates)	Total Production (Crates)	Season's Average Price (Dollars)	Total Cash Income (Dollars)	Average Cash Income Per Acre (Dollars)
1935	16,500	55	908,000	1.65	1,498,200	90
1936	15,600	27	437,000	2.15	939,550	60
1937	14,200	65	923,000	2.30	2,122,900	149
1938	15,600	45	702,000	2.15	1,414,530	90
1939	17,000	50	850,000	2.20	1,870,000	110
1940	19,500	35	682,000	2.50	1,705,000	87
1941	22,400	50	1,120,000	1.75	1,960,000	87
1942	15,000	65	975,000	2.25	2,193,750	146
1943	12,000	40	480,000	5.40	2,592,000	216
1944	10,000	43	430,000	6.70	2,881,000	288
1945	6,000	80	480,000	7.85	3,768,000	628
Average	14,890	48	726,090	3.35	2,085,902	140
1946	6,800	89	605,000	7.20	4,356,000	640
1947	8,500	90	765,000	5.80	4,437,000	522
1948	8,500	80	680,000	6.80	4,624,000	544
1949	6,400	50	320,000	6.00	1,920,000	300
1950	8,700	70	496,000	6.70	3,283,000	469
1951	11,000	65	812,000	5.04	4,092,480	350
1952	11,500	65	748,000	5.93	4,435,640	385
1953	8,600	60	516,000	5.80	3,008,280	349
1954	10,000	55	550,000	6.52	3,586,000	385
1955	11,000	60	660,000	6.77	4,472,000	406
1956	15,000	93	1,400,000	c	c	c
Average	9,636	72	750,000	6.50 ^d	3,821,440 ^d	396 ^d

^aSource: United States Government Printing Office, Agricultural Statistics, 1936-55.

^bSource: Estimates given by J. J. Bird, Associate Horticulturist, Agricultural Extension Service, University of Tennessee, Knoxville, Tennessee.

^cFigures not available.

^dAverages for 10 years.

possible had it not been for the proper functioning of the marketing agency in this area. Hence when we think of economic development of the underdeveloped countries, or the low-income areas of the United States, where the farmers' ventures in the field of agriculture are subject to the limitations of capital and land resources, we have to devise means of making available marketing facilities for the produce. This process requires a careful synchronization of all the factors, bringing about an evolutionary change leading finally to economic development--which is the ultimate goal of society.

CHAPTER III

TENABILITY OF THE HYPOTHESIS

In this chapter it is intended to show that the various factors discussed here contributed to the rise in the acreage of strawberries in the Cumberland Plateau. In order to find out if the hypothesis is valid, certain criteria have to be outlined and discussed, and also the influence of the other factors has to be measured so that the most prominent ones, bearing direct relationship with the phenomenon, stand out clearly. It will thus be shown that evidence indicated that the strategic factors were the educational and organizational changes which were brought about through the efforts of the Extension Service. These included, it will be recalled, (1) analysis of soil and cultural practices which provided evidence that high quality strawberries and very much higher yields were possible in the area--higher than in other regions of the state, (2) use of this data to show farmers and processors that real potentialities existed, (3) use of the canners' and freezers' organizations as a tool to assist in their efforts to educate the growers, (4) formation of growers' clubs to provide organizational framework for education and promotion, (5) and provision of guarantee of an outlet and an implicit guarantee of a minimum price by processors to growers in the area, through continued practice.

Here we will concern ourselves with the collective ef-

fect of these factors in strawberry production and net incomes in the area. Subsequently, the significance of these factors for the theory of marketing and economic development will be analyzed.

Consideration of Various Factors

In this specific case, the fact that economic development of the Cumberland Plateau has been a function of the activities resulting from Extension Service efforts can be verified by discussing the changes of other factors which possibly could have resulted in their acreage increase. Among the other factors are availability of cheap hired labor, favorable weather conditions, and the ability of the farmers to invest and bear risk.

The Influence of Hired Labor

As facts show, we have to accept that strawberries are not grown in extensive acreages and that almost invariably the crop is grown in areas of less than three acres by individual farmers. Thus very little labor has to be employed on these farms, and mostly all the jobs are undertaken by the farmer and his family. The only occasion when hired labor is employed is the harvesting period, when women and grown up school-going children are engaged on the farm for a week or two. This probably means that whatever the trends of employment of hired labor are in general farming, they have no significant in-

fluence on the expansion or the contraction of the strawberry acreages, especially in the Cumberland Plateau low-income areas. Strawberry labor and general farm labor are in effect non-competing groups.

As a matter of academic interest, it may be mentioned that the number of hired laborers employed in farming in general in the Cumberland Plateau did decline during the years 1935-45 from 1.58 to 1.27 per farm and rose again by 1950 to 1.62 (Table III). The strawberry area in the Cumberland Plateau, during the same period averaged 0.016 per cent of the total area of the farms. Any change, therefore, in the trends of availability of hired labor could not have any significant influence so as to bring about a change in the acreage of this crop.

The Influence of Weather

Considering the weather conditions and the possibilities of the weather influencing the decrease or increase in the acreage, it has to be mentioned that farming in general requires predictions and decision-making ability on the part of the farmer. But his capacity of forecasting weather is restricted to a short length of time.

Risk in Relation to Returns

The next factor that has to be considered is the capacity of the farmer to invest and withstand risk. With a higher degree of ability to invest and greater availability

TABLE III

HIRED WORKERS ON FARMS, 1935-1950, SELECTED COUNTIES IN
CUMBERLAND PLATEAU, TENNESSEES^a

No.	County	1935		1940		1945		1950	
		Number of Farms Reporting	Hired Workers	Number of Farms Reporting	Hired Workers	Number of Farms Reporting	Hired Workers	Number of Farms Reporting	Hired Workers
1	Bledsoe	108	226	94	151	37	43	202	344
2	Cumberland	38	71	164	243	77	97	124	264
3	Fentress	119	153	168	231	19	26	123	174
4	Overton	97	137	113	176	17	21	186	257
5	Pickett	42	53	2	4	62	84	15	15
Total		404	640	541	805	212	271	650	1054
Average Number of Hired Workers per Farm		1.58		1.48		1.27		1.62	

^aSource: United States Bureau of the Census, Census of Agriculture, 1935, 1940, 1945, 1950, Reports for Tennessee.

of capital, perhaps it would be possible to increase the acreage. In the case of strawberries the investment per acre is about \$50.¹ This amount, however, in most cases could not be considered to be too high. Casual consideration would make one doubt that any special efforts are required for this investment. But in some cases, it is very likely that even this amount may have to be financed either through a credit agency or, as has been evidenced in the Cumberland Plateau, by the processors.² The amount of risk that the farmer usually undertakes is therefore small compared to the prospects of labor income. The opportunity cost of the limited capital needed is relatively small compared to the return in strawberry production, if a market can be obtained. On the other hand it is reported that in some cases persuasion by the county agent or processor was necessary to obtain credit for establishing strawberry beds. But in any event there is no evidence that credit was more easily obtained for production purposes after 1945 than during the war years.

It is true that managerial decisions have to be made by the farm-operator with regard to the crop that he desires to grow. Forecasting of prices, when his produce is marketable, is one of the very important factors involved. Thus the as-

¹Estimate given by J. J. Bird, Associate Horticulturist, Agricultural Extension Service, University of Tennessee, Knoxville, Tennessee.

²Information from A. W. Woodard, Assistant Marketing Specialist, Agricultural Extension Service, University of Tennessee, Knoxville, Tennessee.

sumption that the farmer would be guided by the prices that have been prevalent before planting, and that it would be desirable to take into consideration the future demand is valid. In this specific case, data shows that roughly the prices current during the previous two years had much to do with the fluctuations in the acreage (Table II). Since the demand situation facing the farmer involves factors beyond his knowledge, the farmer-manager would base his judgement primarily upon the price he actually has received. Strawberries are usually planted during March. Therefore, the price situation two years prior to harvest can be deemed to form the basis for decisions regarding future planting.

The previous chapter, devoted to the development of the specific hypothesis, has shown the varied circumstances which brought about a change in the outlook of the strawberry producers and the processors. While comparing the figures of 1940 and 1945, we have to conclude that with no appreciable number of processor-buyers in the area prior to 1945, the acreage under this crop in the Cumberland Plateau was as insignificant as 0.33 per cent of the state acreage in 1940 and 0.63 per cent in 1945. In the post-1945 period the proportion of the strawberry acreage in this area expanded considerably and the efforts were noticeable in 1950 when the same rose to 2.34 per cent and to 18.04 per cent in 1956 (Table IV and Figure 1). This rise was accompanied with a substantial recovery of strawberry acreage in the state to 11,500 acres in 1952 and 15,000

TABLE IV

ACREAGE UNDER STRAWBERRIES IN TENNESSEE, ^a IN THE CUMBERLAND PLATEAU, ^b
 REST OF THE PLATEAU, ^b AND REST OF THE STATE AND PERCENT OF
 TOTAL BY 5 YEARS 1940-50^b and 1955 & 1956^c

Year	Total Acreage In Tennessee	Cumberland Plateau (5 Counties)		Rest of the Plateau (17 Counties)		Rest of the State	
		Area (Acres)	Percent of Total	Area (Acres)	Percent of Total	Area (Acres)	Percent of Total
1940	19,500	65	0.33	1954	10.02	17,481	89.65
1945	6,000	38	0.63	450	7.50	5,512	91.87
1950	8,700	204	2.34	1500	17.24	6,996	80.42
1955	11,000	1900	17.27	1855	16.86	7,245	65.87
1956	15,000	2706	18.04	2500	16.66	9,794	65.30

^aSource: United States Government Printing Office, Agricultural Statistics
 1941, 1946, 1951.

^bUnited States Bureau of Census, Census of Agriculture, 1940, 1945, 1950,
 Reports for Tennessee.

^cSource: Estimates given by J. J. Bird, Associate Horticulturist, Agricultural
 Extension Service, University of Tennessee, Knoxville, Tennessee.

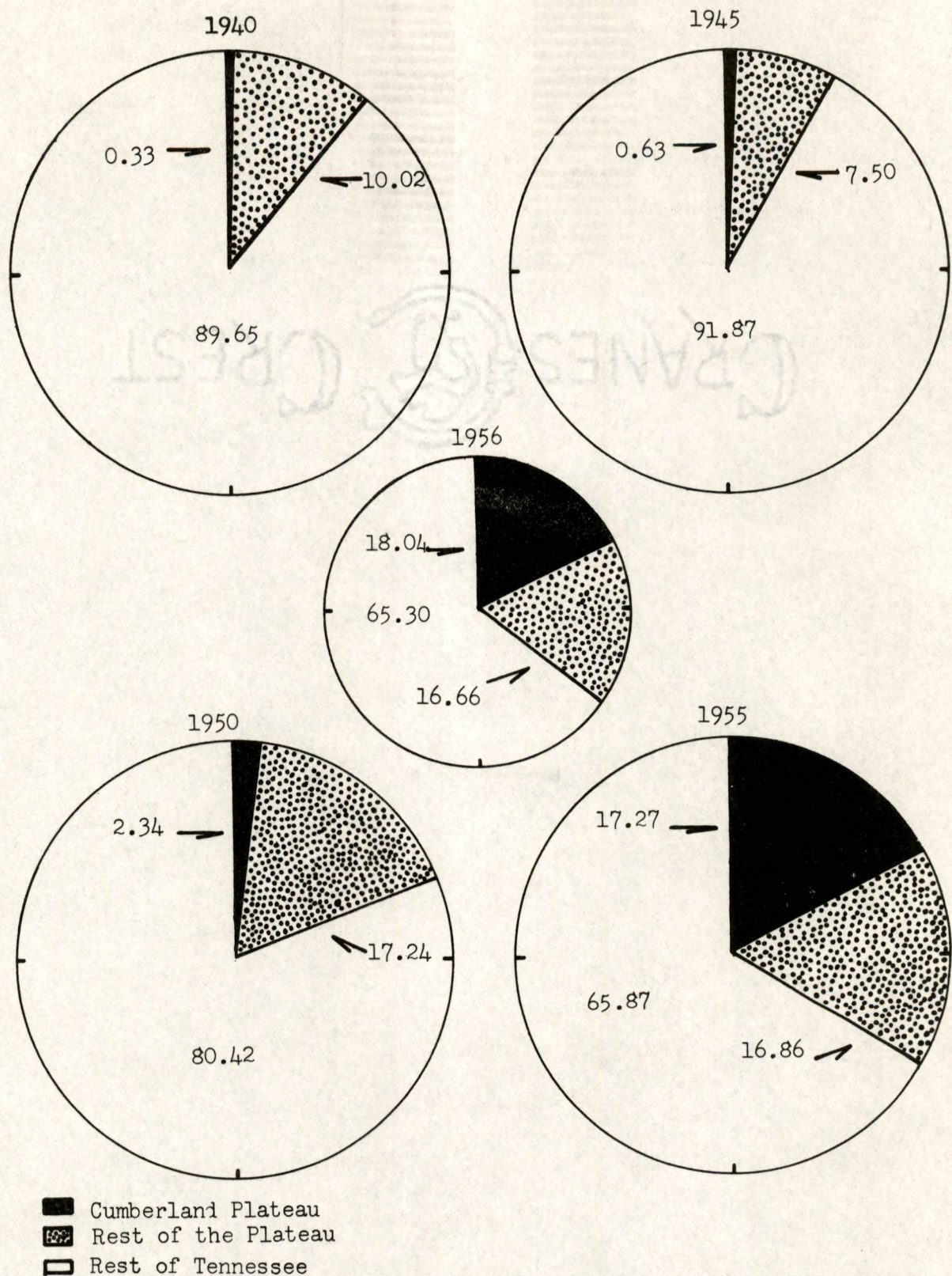


Figure 1. The proportion of areas under strawberries in the Cumberland Plateau, rest of the Plateau and rest of Tennessee by 5 years (1940-55) and 1956.

Source: Table IV.

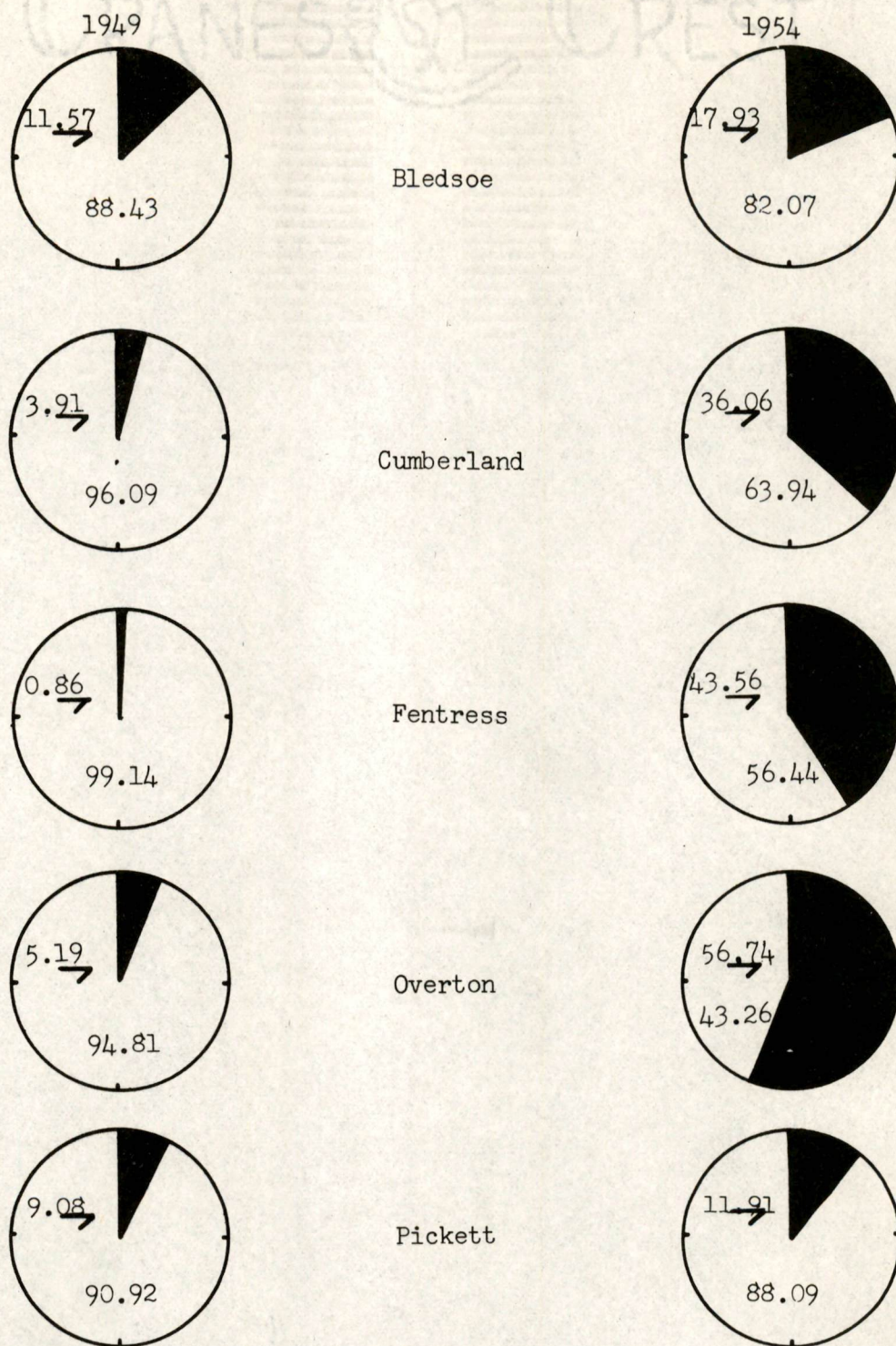
in 1956 (Table II and Figure 2).

The inferences drawn relate particularly to the Cumberland Plateau area, which in 1956 contributed 18.04 per cent of the total state acreage under this crop. It is for these reasons that we have to rely on the tenability of the hypothesis that in the Cumberland Plateau the coordinate changes in production techniques and procedures followed by operators of marketing facilities and the increased demand due to them have given a direct incentive to the growers of this crop. Moreover, what has to be taken into account is the value of the crop produced in the area, which in 1954, on the average, formed 33.24 per cent of the total income of the farmers as compared with 7.67 per cent in 1949 (Table V).

Individually, Cumberland County recorded an increase of 1260 per cent in the value during 1954, when compared to 1949. Fentress County had a rise of 9118 per cent, and Overton that of 2251 per cent; while Bledsoe and Pickett Counties increased by about 95 and 578 per cent respectively (Table V).

Possibly in part, as a result of the development of the industry, there was a rise in the per-farm income in this area of 36 per cent from 1949 to 1954 (Table VI).

It would therefore be evident that the Cumberland Plateau had the natural potentialities of "soilfit" and climate. The small farmers in this area were evidently eager to improve their economic condition; technologies were already existing



 Percentage of Income from Strawberries
 Percentage of Income from All Crops

Figure 2. Comparison of the percentages of value of strawberries and all other crops on the Cumberland Plateau, Tennessee, during 1949 and 1954.

Source: Table V.

TABLE V

COMPARISON OF THE VALUE OF ALL CROPS SOLD, THE VALUE OF STRAWBERRIES,
AND THE PERCENTAGE OF INCOME FROM STRAWBERRIES IN THE
CUMBERLAND PLATEAU, TENNESSEE, IN THE YEARS
1949 AND 1954^a

County	1949		1954		Percent Increase in Value of Strawberries in 1954 Compared to 1949
	Value of All Crops (Dollars)	Value of Strawberries (Dollars)	Value of All Crops (Dollars)	Value of Strawberries (Dollars)	
Bledsoe	213,366	21,469	233,374	41,861	95
Cumberland	399,875	15,625	589,675	212,627	1260
Pentress	212,036	1,826	384,730	178,337	9118
Overton	253,054	13,125	544,036	308,662	2251
Pickett	280,064	2,543	289,738	17,258	578
Average					1290
					33.24
					7.67

^aSource: Leslie A. Glascock, "Market Structure of Buying Firms and Practices of Strawberry Growers in the New Cumberland Mountain Area of Tennessee, 1954" (Unpublished Master's Thesis, University of Tennessee, 1954), Table III, p. 50.

TABLE VI

NUMBER OF FARMS, TOTAL VALUE OF STRAWBERRIES SOLD AND AVERAGE
PER FARM INCOME FROM STRAWBERRIES BY COUNTY IN THE
CUMBERLAND PLATEAU, TENNESSEE, DURING
1949 AND 1954^a

County	1949			1954			Per cent rise in 1954 in the Average Income Per Farm Compared to 1949 (Dollars)
	Number of Farms	Total Value of Straw- berries Sold (Dollars)	Average Income Per Farm from Straw- berries (Dollars)	Number of Farms	Total Value of Straw- berries Sold (Dollars)	Average Income Per Farm from Straw- berries (Dollars)	
Bledsoe	74	21,469	290.12	79	41,861	529.88	82
Cumberland	77	15,625	202.92	833	212,627	255.25	26
Fentress	15	1,826	121.73	1125	178,337	158.52	30
Overtown	62	13,125	211.69	1429	308,662	216.00	2
Pickett	18	2,543	141.27	112	17,258	154.00	9
Total	246	54,588	967.73	3578	758,745	1313.65	
Average	Per County 49	Per County 10,917	Per Farm 193.54	Per County 715	Per County 151,749	Per Farm 262.73	36

^aSource: Leslie A. Glascock, "Market Structures of Buying Firms and Practices of Strawberry Growers in the New Cumberland Mountain Area of Tennessee, 1954" (Unpublished Master's Thesis, University of Tennessee) Table V, p. 50, Based on United States Bureau of Census, Census of Agriculture: 1950 (Washington: Government Printing Office 1953); and County Agent's estimated total acreage.

in the area and the processors, too, were keen on launching a profitable enterprise. The development of industry thus required the services of an institution to act as an intermediary in order to organize the industry into more effective relation. The combined activity of all these participants thus brought about a change in the economy of the area, which has contributed towards an increase in the social product.

CHAPTER IV

IMPLICATIONS SUGGESTED BY THE FINDINGS

The facts in this case-study, as discussed in the previous chapters, can briefly be summed up as follows:

(1) With the expansion in the acreage in the Cumberland Plateau, there was a relative increase in the total output of strawberries, resulting in increased incomes to the growers.

(2) As a result of the educational activity of the Agricultural Extension Service and in part carried on by organizing the growers the area under strawberries increased in the Cumberland Plateau.

(3) In the period after 1945, the area under strawberries increased when the processors, as a marketing agency, provided an incentive for production by agreeing to purchase the entire crop at not less than 15 cents per pound.

These results take us to the conclusion that, firstly, the project required the services of an institution to educate the farmers and give them proper guidance in the matter of selection of crop, in view of suitability of soil and climatic conditions. With the suitability of soil, the growers also benefited from the advantages of nearness to the processing plants. It also meant that the marketing agencies were provided with the proper knowledge of ways and means of expanding

their supply, and thereby creating a demand for the raw commodity. Thus the Extension Service played a dual role of benefiting the marketing agencies who were hitherto deprived of the availability of strawberries in sufficient quantity in this particular area and the farmers who could increase the returns from the limited resources at their disposal.

Next, the previous details lay down that in order to promote the production of this commodity demand incentive was of vital importance. We have seen that by the various methods the processors were interested in expanding the acreage and in increasing the yield per acre and the quality of the crop. Thereby they caused a definite change in the demand structure facing farmers and made it adjust to the new supply level, a point which will be discussed in detail later.

With the observations concerning the case of strawberries in the Cumberland Plateau, we have now to formulate the theoretical implications that this evidence suggests. We may also briefly refer to the outstanding concepts prevalent with regard to certain assumptions in the theory of the firm, and infer in general that educational activity forms an indispensable component of the mechanism which can bring about a change in the structure of an economy of the type that usually exists in the low-income areas.

The general concept that we assume, when we talk about the theory of the firm and the equilibrium price, is that the demand and supply schedules are static in nature and on this

assumption the entire theory is based. In the previous chapters we have observed that a change in demand came about as a result of the change in the supply schedule.

In order to conceptualize the theoretical implications of the phenomena of increased production, we have to view it from both sides, i.e., supply of and demand for the commodity. These two phases will be dealt with separately to show what exactly the activity implied in the light of economic theory.

We may recall that during the period before 1945 the area under strawberries had gradually contracted, having touched the lowest figure for the state in 1945. This finds an explanation in economic theory that while prices remained more or less constant because berries are sold in the national market, the average total cost increased due to spread of disease and insects and also perhaps due to increased wartime wages. Owing to the previously discussed handicaps of lack of knowledge of better techniques of production, costs of many farmers were too high to warrant production under prevalent demand conditions. This can be viewed as a shift upward in the average total cost curve, as in Figure 3. The use of technological innovations introduced by the Extension Service then enabled the farmers to lower the average total cost curve (ATC') and qualified them to enter or stay in the field as suppliers of the commodity at given prices in the market. The efforts of the Extension Service were therefore directed towards, at first, the creation of firms with a lower ATC curve

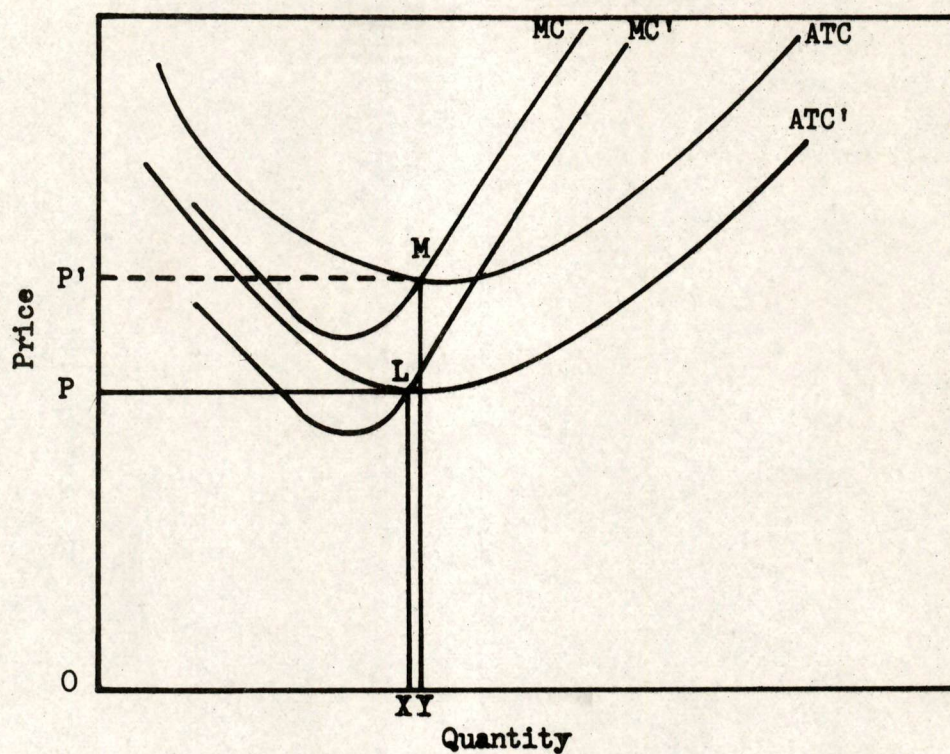


Figure 3. Theoretical effect of change in technology of production.

CRANES & CREST

(ATC'). As a result of the use of known and existing technology the firms were able to lower their costs and the industry was thus benefited with external economies. This situation would enable the total production to rise considerably and also make it possible for those farmers to re-enter as producers of strawberries, who had given up for reasons of high costs. The lowering of the Average Total Cost curve would make it possible for the farmer to make a minor change in price, i.e., from OP to OP' (Figure 4), in order to expand the quantity of the commodity in the industry. As we see in Figure 4, the rise in the quantity is relatively much more than the small fall in price.

The number of processor-buyers, who were the chief agency to buy the commodity, were few in this area. The number of processing firms that could profitably operate in the market were restricted, due to spatial features of strawberry production. While there is only one freezer plant located in the Cumberland Plateau,¹ some buying agencies are spread over the area. Still owing to their number being small (Figure 5), the market cannot be classified as completely competitive from

¹Conversation with J. J. Bird, Associate Horticulturist, Agricultural Extension Service, University of Tennessee, Knoxville, Tennessee, September 27, 1956.

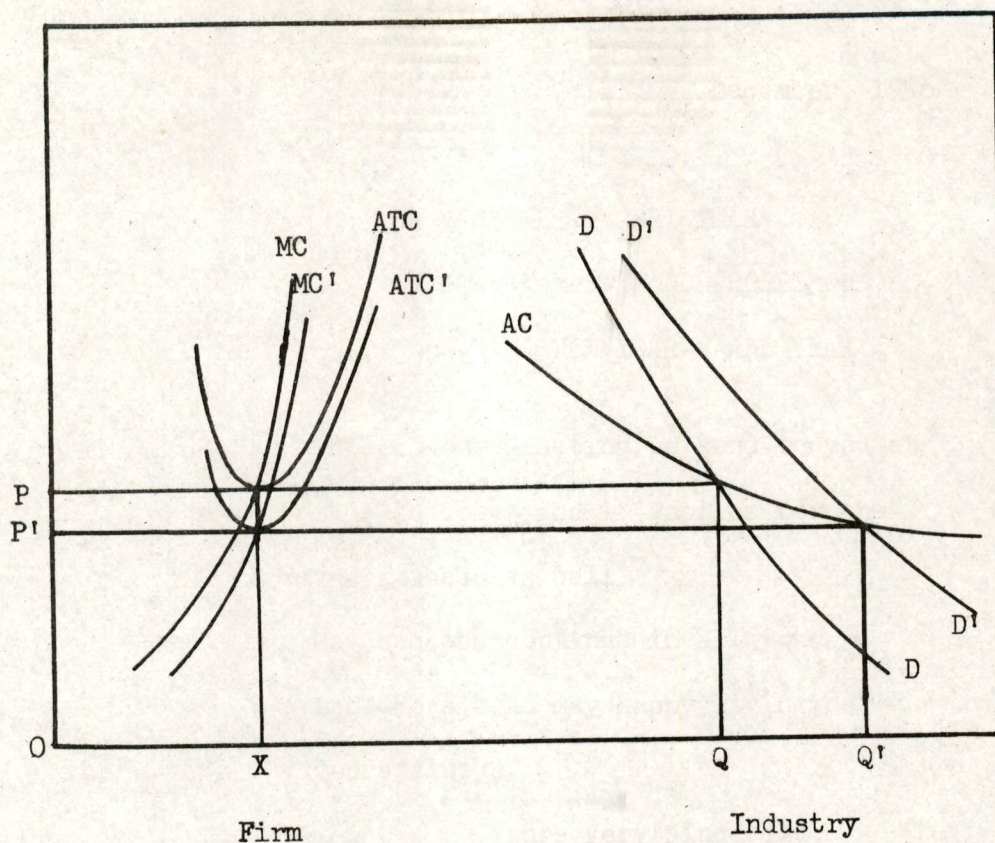


Figure 4. Hypothetical illustration of application of technology by the producing firm and the benefits of external economies accruing to the industry.

Source: Jacob Viner: "Cost Curves and Supply Curves," Readings in Price Theory, Vol. VI. Editors: George J. Stigler and Kenneth E. Boulding. Chicago: Richard D. Irwin, Inc., 1952.

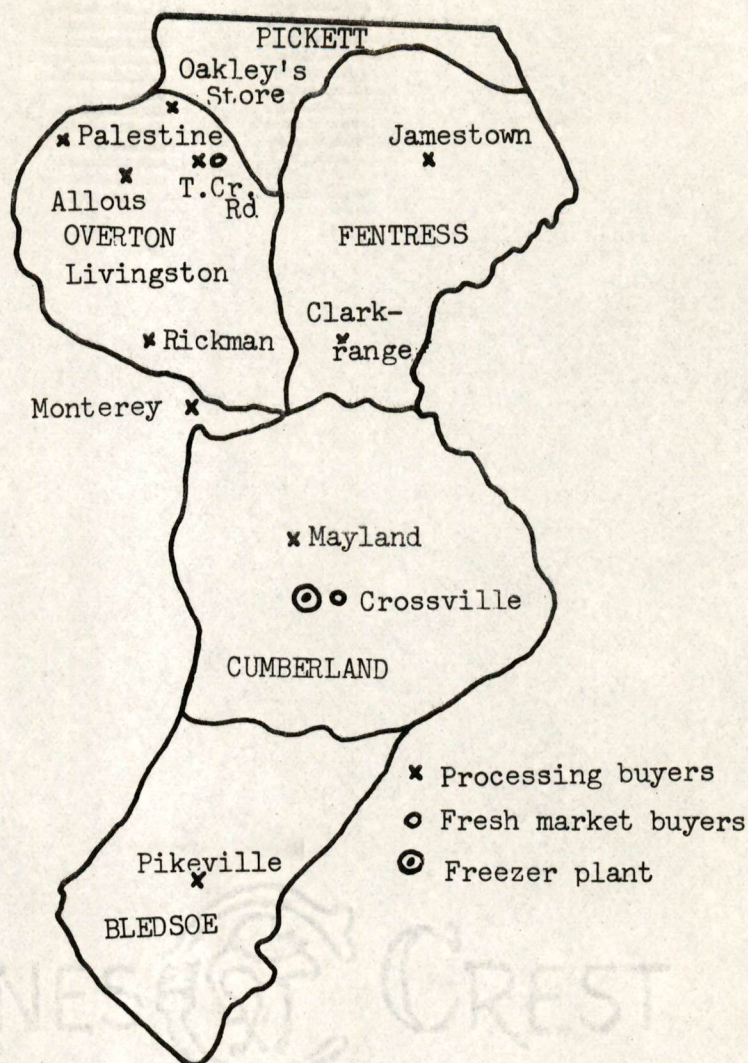


Figure 5. Distribution of strawberry buying points in Cumberland Plateau Area, 1954.

Source: Leslie A. Glascock. "Market Structure of Buying Firms and Practices of Strawberry Growers in the Cumberland Mountain Area of Tennessee, 1954," unpublished Master's Thesis, University of Tennessee, Figure 8, p. 63.

the buyers' point of view. It therefore presents a case of oligopsony. We also find some evidence of this in the formation of a cartel-like organization under the auspices of the Tennessee Frozen Foods Association. The processors adhered to more or less uniform practices in their dealings with the growers. Specifically, they agreed to an informal guaranteed minimum price. This was therefore a collusion of oligopsonistic buyers in the area.

If the sale of the commodity had remained confined to the fresh market (represented by DD' in Figure 6) and, due to the various reasons discussed above, the supply schedule had shifted to $S''S''$, then a considerable fall in price was not significant. It remained more or less constant because, below a given price (presumably something above the guaranteed minimum price of 15 cents per pound), the operation of processing plants became profitable. These processing-buyers, because they sold in a national market, might have been expected to create a very elastic local demand for the raw material, with the result that the demand curve took a new shape viz., DD'' , and the price did not fall in proportion to the increase in supply of the commodity. This meant that the processors would buy the entire quantity produced with relatively little decrease in

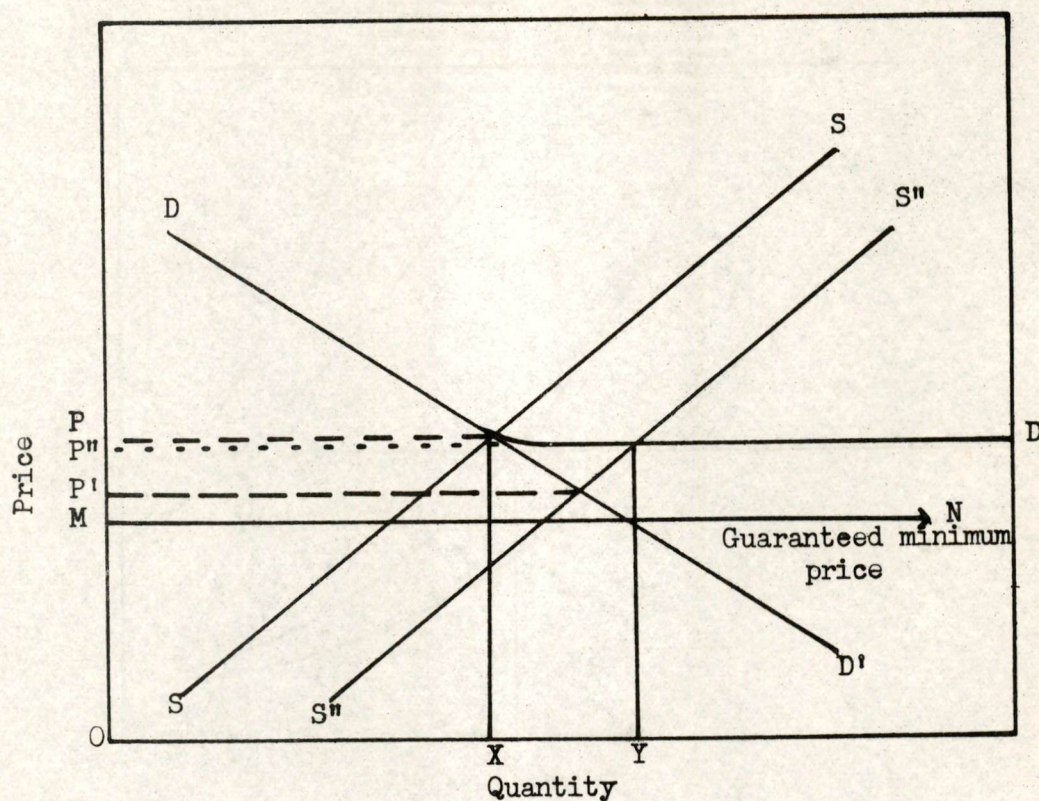


Figure 6. Theoretical effects of changing technology with only fresh-market buyers and with a processor selling in a national market.

price, i.e., from OP to OP" in Figure 6.

The processor-buyers would not have functioned as long as the Average Cost remained higher than the DAR² at all levels of operation and this would continue until the AC curves took a new position tangent to or below the DAR curve (Figure 7). In case of a supply curve such as AC' the price paid would establish at OP in the short run.

In the case of underdeveloped countries, whose economy is based mainly on agriculture the position is not even this. It has virtually monopolistic features owing to lack of marketing agencies. There is usually one local purchaser who dwells in the village and undertakes to buy agricultural commodities at a price that he himself sets up; his DAR is very much above his AC. This person is usually the money-lender to whom the farmers are obligated to sell in order to repay the outstanding loans or to obtain new funds. Lack of communication and proper means of transport facilities, and the absence of means of spreading market news further channel all the agricultural products to the local purchaser, who has no competitor whatso-

²DAR = Average Gross Revenue minus the Average Cost of processing and distribution.

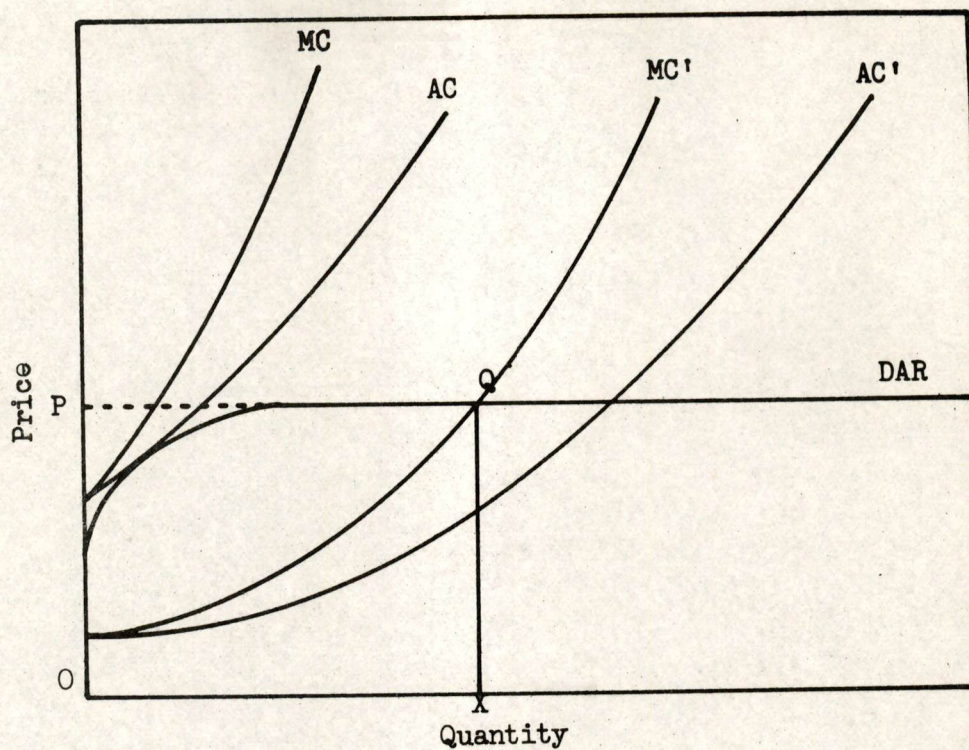


Figure 7. Hypothetical equilibrium for oligopsonistic firm with changing supply schedule.

ever in that particular location.

In such areas, where programs of development are under way, the need, therefore, is to promote the growth of healthy competition amongst buyers through establishing markets in suitable locations. Of course, in this are involved scale economies, which form the basis for such an approach.

The Cumberland Plateau does not have handicaps of transport, market news, etc. Here it is a matter of investigation if it has the required potential to expand the cultivation of this commodity enough to create competition among the processor-buyers so that the growers are benefited with the higher prices that may be offered by the competing buyers. If entry were unrestricted but economies of scale were important, the AC curve facing each firm would be upward sloping, equilibrium being at OP price and OX quantity. If economies of scale were not important relatively, the average cost curve would be completely elastic as in ac' and both output and price would be higher.

The facilities of transport and spread of market news are not the only guiding factors in such a development. Education stimulated by pressure groups who demand

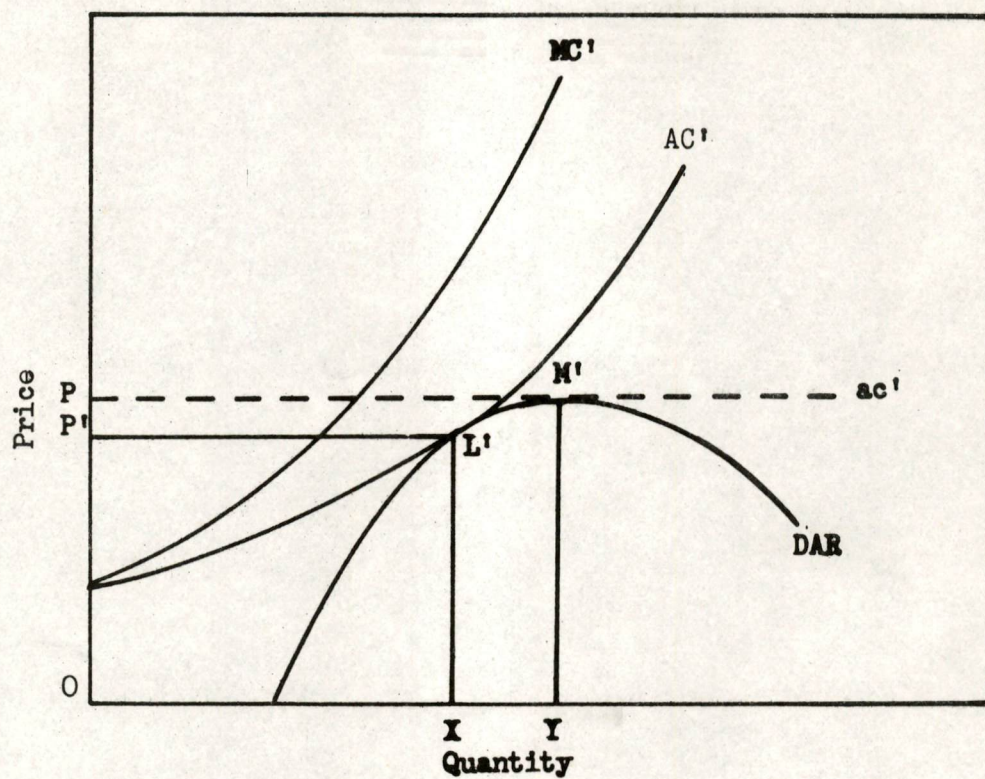


Figure 8. Theoretical competitive and monopolistic competition equilibrium.

service from public institutions, and adoption of ways of education like contests among the growers, awarding them prizes and formation of clubs (like the 300 crate clubs in this case), are all directed towards achieving this end.

Undoubtedly, reduction of uncertainty also plays an important part, and the happenings in the Cumberland Plateau offer us some evidence in this regard. We have seen that a minimum price was guaranteed by the processor-buyers even though it was to their disadvantage individually; but when considered collectively, it proved to be profitable for the group.

The growers in this specific case had no opportunity to manipulate their profits through methods of product variation, nor were they in a position to stimulate demand for strawberries through any kind of promotional activity, which two factors are the usual features of a firm in other industries.

As facts in this case study show, the processors were as eager to buy the produce as the growers of strawberries were eager to produce and sell. The result was that neither of them had bargaining power. The demand for the fruit facing individual producers automatically went

up above the fresh-market demand once the quantity produced exceeded OX and the price fell to OP (in Figure 6) and the plants were set to work. But the producers apparently were not confident that the freezers would go into operation and prevent the price from dropping as it would in an exclusively fresh market situation (DD'). The informal guaranteed minimum price, however, served to eliminate uncertainty and hence helped shift the supply curve into a position such that operation of the freezer was profitable. Further, the processors recognized that through promoting education regarding production techniques this supply curve would be further shifted. On the other hand if evidence had not been available as to the technical possibilities, the price would have fallen to OP'. Thus the demand schedule and also the supply schedule underwent changes. There was a mutual interdependence of the two functionaries which almost formed a basis for cooperative relationship. Under these circumstances the services of the producing specialists, i.e., the farmers, could carry meaning only when they were joined with the efforts of the processor-buyers. That is, plans for increased production depended upon pre-existing knowledge that the increased production would be purchased at acceptable prices. The joint pursuit of the two partici-

pants (who were motivated to do so through the efforts of the Extension Service) resulted in more productive utilization of resources at each other's disposal and caused the growth of an economic interrelationship which ultimately contributed to the economic development of the area in general. Thus we see that contrary to the general concept of the theory of the firm, the processing firms themselves are able to manipulate supply through removal of imperfect knowledge of production. The fact that there was a general acceptance of the prices paid by the processors is evidenced by the growing increase in the acreage under this crop. Here it may be repeated that the appeal was not that of maximizing the given production function but was one of changing the schedule. We also notice that the growers were responsive to the demand for improved quality and sufficient output to fulfill the requirements of the processors. The demand structure facing each firm was thus not a static thing. Reciprocally, it was by organized attempts to improve yields and quality that the producers of the crop provided an incentive to the processors to set up a mechanism which would enable them to market the crop grown in the area. As we have noticed so far, in this particular case, the processors shifted the supply schedule, which fact is normally

not encompassed by the scope of the production-theory.

The conjoint interest of the processors in educating the growers, and that of the processors and the growers in promoting and developing the industry in the Cumberland Plateau, was the result of "symbiotic" cooperation between the two, enabling both the parties to achieve their desired ends. Here we are concerned mostly with the total benefit derived by the farmers in terms of money value, or the addition of the social product of this commodity in particular. For this purpose it would be sufficient to observe that in the Cumberland Plateau, per farm income has risen from \$193.54 in 1949 to \$262.73 in 1954 (Table VI); also far greater area has come under the crop. The Cumberland Plateau in 1945 had only 0.63 per cent of the total acreage of strawberries in the state, which by 1956 had expanded to 18.04 per cent (Table IV), at the same time increasing considerably the value of the crop produced (Table V). This, therefore, is a significant proof of the resultant effect of the conjoint activity of an institution and a marketing agency. The net result is obvious. With increased acreage there is fuller employment of the limited resources. With greater production there is increased income received by the farmers. This evidently would help the farmers to a better realization of the aspirations of higher levels of living.

This cooperation has every chance to continue until

one or both of the parties find some alternatives. As is noticed, the production of strawberries in the Cumberland Plateau would be dependent upon the stability of prices offered in this particular region, which perhaps would fluctuate along with the trend of prices in the national market.³

But at any rate we see that the mere existence of the resources for the production of a certain commodity cannot necessarily bring about any beneficial change in the economy. Conversely, the existence alone of a marketing agency can achieve no purpose. It is here where the economist and the social scientist step in and contribute to defining areas of technical possibilities. The role of economist thus starts with making the individual aware of the benefits of conjoint activity. It therefore amounts to organizing the society to enable it to form effective relationship among people.

It is not only the individual who is a direct participant in this activity, but the society as a whole is involved. Of course, while considering economics of society, we do have to consider its smaller components, the individuals. There-

³Conversation with J. J. Bird on July 16, 1956 disclosed that the crop harvested in May and June of 1956 had actually created this situation. Owing to the increased supply, the prices paid were about one cent per pound less than the average of the immediately preceding normal periods. This indicates the trend of production and the likelihood of greater market control by the processors. This position, if it became a regular feature, might call for certain policy measures.

fore the consequences which affect the direct participants and others who are not involved in the transactions directly are of vital importance and have to be attended to by some agency of the state, which has to assume a certain role in the economic activity to bring about conditions and results that would favorably help advancement and progress. The "State" which consists of the officials acting in behalf of the people is created to assume this responsibility of protecting the interest of the public in view of the conditions prevalent, giving due care to the culture and habits of the people. In this specific instance, this responsibility was taken up by the Extension Service, which rendered help in carrying on experiments in this particular field, enabling the farmers to depend less on the probabilities, chances and accidents. The method of approach was based on scientific research with regard to suitability of soil and climate, insecticides and disease control. This agency again regulated the conjoint actions of the processor and grower groups to bring about beneficial results. A change in knowledge of technical possibilities and market opportunities changed the production habits of the growers.

The logical deduction would therefore be that for the purpose of bringing about change in the established habits of people, the activity of an institution is desirable and necessary to motivate them towards deliberative actions, thinking, desiring and performing such acts which would take them out of

the age-long static conditions, and would enable them to break through the web of conservatism.

CHAPTER V

POLICY AND PROGRAM IMPLICATIONS

The Role of the Social Scientist

A program of actions has to set up objectives and goals that have to be achieved for the advancement of society. This necessarily entails the conceptualizing of the problems facing the nation or areas, by studying existing conditions, projection or forecasting of the results of pursuing a particular program, including the chalking out the ways and means of implementation of the program and its consequences. This would constitute what we call "public policy" formulation. The duties and responsibilities for new public policies are therefore split up as amongst several individuals and groups. First the economist or the social scientist is entrusted with the formulation of plans and their projection. The representatives of the public (elected legislators and administrators) are charged with the actual policy decisions taken as a result of guidance provided by the researcher. Thus we seek to lay more emphasis here on the role of the social scientist who enables the "public" to frame laws and regulations for the economic well-being of the country.

The consequences of a systematic action by the state, therefore, require careful consideration, because these consequences cover even those who are not directly engaged in the

particular occupation. It is with these indirect consequences, in fact, that the public policy is concerned primarily. Thus, in general terms, we are concerned with the result of all effects interpreted in relation to prevailing conditions and problems.

Improvement in knowledge of technical and social processes in recent decades enables us today to devise better ways of carrying out our intentions of solving many social problems. These decisions require political, social and economic sanctions which vary according to the country's political setup, its cultural norms, and access to the resources. Thus the people in low-income areas or in the underdeveloped countries have to be educated and familiarized with knowledge which can make them alert in seizing economic opportunities. Economic growth can be thought of as a process by which the opportunities are identified and used. Ultimately, economic growth has to be desired by the people, and the test for it is the willingness and ability of the population to gain control over their resources and environment. This normally comes about with the realization of their present unsatisfactory position and with the development of aspirations and initiative, either self-motivated or brought about by an external agency working in coordination with them. A country in the process of development, India, for instance, furnishes us with some evidence to this effect.

Evaluating Production Possibilities Under Existing But Unutilized Technology

During the period of the British rule, through the efforts of eminent leaders like Mahatma Gandhi, the people were made to realize the potentialities they had for development. Mahatmaji devised certain ways and means of achieving their objective of political emancipation. The main tool was non-violent civil disobedience. Ultimately it was designed to gain control of economic resources. As a result, India emerged as a free nation. Thus, after independence this aspiration had developed to such an extent that it found expression in a compelling general demand for the provision of economic opportunities. Hence the drafting of the Five Year Plans took the shape of formulation of policies of economic development. The progress that has been made during the first plan period (1951-56), although modest enough, has been the result of active cooperative attempts through the process of government to stimulate more rapid economic growth. This has resulted in a 10% rise in the per capita income during the last five years.¹ It is difficult to say that the same results could have been achieved in an India under bondage, because of the peoples' suspicion regarding the colonial government. How far the external agency alone, i.e., the British Govern-

¹Planning Commission, Government of India. Second Five Year Plan: A Draft Outline (New Delhi, 1956), p. 26.

ment, could have been successful in an attempt to impose a program like this is a matter of doubt.

The efforts of the machinery that was set up by the independent government of India were thus at first directed towards removal of imperfect knowledge in agriculture and introduction of technological innovations, so far as they were applicable to the country's conditions and requirements. The result was that with an expenditure of Rupees 372 Crores (16% of the total outlay),² there was an increase of Rupees 798 Crores (amounting to an 18% rise) in the production of agricultural commodities.³ This growth has provided the economy with a definite fillip and has paved the way for further improvement in resource efficiency.

While the first plan period and its results have brought in definite changes on the production side, the second plan (1956-1961) envisages the provision of marketing facilities which will provide the farmers with suitable opportunities to vend their produce at favorable prices, which ultimately would reflect to them. And this aspect would also result in the redistribution of income, which is a necessary component of economic development.

The conditions that apply to India are in a way very

²Ibid., p. 22. Rs one Crores = About \$2 million.

³Ibid., p. 26.

similar to those that are applicable to the underdeveloped areas of the United States, with the exception of certain facilities like those of transport, storage, communications, etc., that are already existing in this country.

What needs pointed attention here is that the mere existence of resources in the low-income areas does not necessarily mean their optimum and efficient use. What is more important, in the early stages of economic growth, is to consider whether or not the price obtainable by the farmer for his product equalizes the marginal product of the particular factor and also whether or not the marginal productivity is the highest among all the possible uses to which the factors of production could be channeled. In the Cumberland Plateau, as we have already noticed, adequate resources of land and labor for strawberry production were not lacking. Capital, of course, was scarce but the investment needed was relatively small. If the farmers had been familiar with the results of employing their resources more efficiently, using improved technology, the needed capital would probably have been forthcoming. But they were unable to gauge the income-bearing capacity of this enterprise. The improved allocation of resources thus required education and security. In the absence of adequate data it is difficult to state precisely what the marginal value product of capital invested was. However the gross income per acre (Table I) was apparently very high, and the opportunity cost of family labor was very low. Even if all picking labor were hired, the net labor income would be well in

excess of the total investment.

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Evaluating Possible Changes in Affecting Production Possibilities

Just as forward pricing can influence the production of agricultural commodities in the future,⁴ the implied security of obtaining a minimum price, in the case of strawberries, may have been an incentive to the production of this commodity in the Cumberland Plateau. The relatively secure price level during the normal years in the post-1945 period has enabled them to formulate production plans for strawberries which have presumably improved their incomes. This in turn may have led to improvements in health, housing, education, etc. This means that the farmers had to be equipped with the knowledge that was required to identify the problems--that of soil-fit and use of artificial fertilizers to improve the quality of the crop. They had also to be acquainted with the ways and means of combating the shortcomings--those of disease and pest control through the use of sprays, etc.

The Long Run Problems: Development of New Technology to Expand the Resource Base

While we consider the effects of a planned action, although benefit to society in the immediate future is the main consideration, at the same time the long-run effects cannot be

⁴D. Gale Johnson, "Contribution of Price Policy to the Income and Resource Problems in Agriculture," Journal of Farm Economics, Vol. XXVI, No. 4, November 1944.

ignored. A long-range policy affects allocation of resources and distribution of incomes. In considering the social policies of developmental programs for agrarian areas, one of the focal points of interest is that of achieving incomes in agriculture more nearly on a par with incomes in other enterprises. This objective is achieved only when a program is spread over a long range of time, in which case technology is not fixed. As resources are applied to the technical research, development of new production possibilities becomes feasible. In the Cumberland Plateau if the techniques of production had not been changed and if the farmers had not been encouraged to make use of the advanced technology, the progress would not have been evidenced. In underdeveloped countries the problems are different. The known technology is not totally adaptable to their conditions. Where these situations arise, research forms a basic necessity, in order to devise methods of application of the known technology or new technology.

Market Facilities and Market Organizations

The completion of this phase of discussion leads to the next important step. The success of implementation of a development plan rests not only on how the farmers are taught the best methods of raising agricultural crops, but also lies in teaching them the most economical methods of marketing the produce. This has to be done through an effective educational

agency which has to maintain cooperative relationship with all government and private agencies and organizations having responsibility and interest in the same field. As a means of facilitating the working of such an extension service, with regard to marketing activities, formation of agricultural cooperatives in the agrarian areas can be offered as a suggestion, with the purpose "to advance the interests of its members as producers."⁵ In the Cumberland Plateau, however, this aspect seems to have been given little consideration, as the farmers did not evince any desire to this effect, although such an organization among the growers would have been a success. Undoubtedly, a cooperative society of the growers of strawberries would assure the flow of a regular supply of the fruit to keep the plants operating at optimum capacity and would also ensure production of high quality fruit, yet the farmers do not seem to accept the idea that it would be more beneficial than the present system which they are following. In areas where land is scarce and where agriculture is carried mostly on small-size farms, such an institution can achieve the desired objectives in providing control over the markets. It is with these motives that in India, Community Development and National Extension programs have been initiated. These are meant to provide "a link between national planning and

⁵Henry H. Bakken and Marvin A. Schaars, Economics of Cooperative Marketing (New York: McGraw-Hill Book Co., Inc., 1937), p. 210.

changes which are sought to be achieved within the rural economy."⁶

Through the institution of cooperative societies, it would be possible also to develop among the village communities a spirit of cooperation and self-help, and at the same time strengthen the economic basis of village life. India is aiming at cooperative village management and it is through this institution that she hopes to bring about a change in the outlook of the people to assume cooperative responsibility of the community. When this is achieved, perhaps, the people would be in the proper frame of mind to adopt cooperation in other fields as well, i.e., those of marketing and processing. It would also be easier for the agency working in this direction to bring about a technical change for reasons of low education, etc., wherein the individual farmers would not have to be approached for implementing a certain plan. On the other hand, the associations would have to be convinced of the results of a change.

The statement of the present trends in the agrarian areas and the goals that have to be achieved by them, therefore necessitates an emphasis on the formulation of public policies in accordance with the cultural norms and the trends of the people in that particular area. Here we may cite the

⁶Planning Commission, Government of India, Second Five Year Plan, A Draft Outline, op. cit., p. 67.

Cumberland Plateau again, wherein perhaps, the formation of co-operative societies would not be as difficult as the task ahead in the underdeveloped countries, the obvious reason being that the people here are not only better educated relatively, but they have also witnessed the good results of this movement in other parts of the country, for instance the fruit growers' associations in California and other states. The need therefore, is to charge the extension service agency with the duty and responsibility of investigating into the present marketing conditions and if it is concluded that a change is desirable and fruitful, to work for the establishment of the growers' cooperatives.

Recapitulating what we have discussed in the previous pages, the argument means that:

(1) If the existing known technologies are not applicable to the conditions prevalent in the underdeveloped areas of the world, research in this field is almost a necessity in order to provide guidance to the legislators.

(2) In the field of marketing, if the individual is lacking in efficiency and is unable to gain control, co-operative organizations may be considered to enable the producers to gain control of the various processes of vending their produce.

(3) People who are not educated to manage their own collective action may require educative experience, so as to cultivate attitudes that would make an effective cooperative attitude possible.

CHAPTER VI

SUMMARY

Theoretically, practices followed by the primitive societies--those of exchange of gifts and barter of goods--fell crudely within the modern concept of marketing. Marketing became more prominent and important with the emergence of the concept of pecuniary value, due to the introduction of money as a medium of exchange.

The theoretical concepts prevailing in the times of Ricardo, Marshall and Keynes were an outcome of the attention given to the static problems as a result of the interest of the neo-classical economists in investment and stabilization.

In the case of strawberry production in the Cumberland Plateau, it was necessary for the growers to have knowledge of the real potentialities that existed in the available technologies. With them the farmers were thus able to utilize their resources more profitably and produce strawberries at a lower cost.

In order to achieve the objectives of spreading knowledge of techniques and production possibilities, the medium of the Extension Service was helpful and desirable. However, in order to effectuate the program it was necessary to mobilize the processing industry by showing them that the program was in their collective interest.

One of the vital factors that gave encouragement to this

industry involved the development of the market for the commodity, i.e., the development of institutional conditions which assured a market with the guarantee of a minimum price. That is, the existence of demand for the commodity was not realized by the growers. In the absence of this guarantee, this "hidden demand" would not have come into prominence unless, as a matter of experience, there had been an expansion in the supply, and the entire commodity produced had been accommodated in the market by the processor-buyers. With the institutional guarantee of a minimum price, the growers had the confidence that their produce was marketable at a reasonable price. On the other hand, because of this guarantee the processors had assurance of a supply sufficient to pay them to operate their plants.

This conjoint activity shows the existence of possibilities through collective efforts and institutional changes in the marketing system to promote economic development. Whether under such conditions, formation of cooperatives would be helpful or not is a matter for study with reference to individual areas. What can be pointed out here is that the formation of cooperative associations would, however, be an alternative by which farmers would be able to gain control over the marketing system they face and hence to have more concrete assurance of an acceptable market.

The formulation of public policies for economic development requires a careful consideration of various factors, in-

cluding the personal qualities of the people and the cultural norms. The introduction of known or new technologies in underdeveloped countries has to be considered in the light of conditions prevalent in the particular country. The greatest need of the time in the underdeveloped countries, perhaps, is to educate the people to make them capable of estimating the possibilities of growth as a result of adoption of the technologies. Opinion would also have to be molded to make the improved methods of marketing acceptable and adaptable. But this process of education is bound to take a long period of time. In the intermediary period, therefore, programs of development can be successfully implemented through the medium of organized bodies of the farmers, like the cooperative associations. Such associations when formed and started would also open up avenues for the promotion of leadership in the community.

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